

Republic of Lebanon
National Council for Scientific Research

Provisional Seismological Bulletin

from the

NATIONAL SEISMIC NETWORK

January

2012

Prepared by
The National Centre for Geophysical Research
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GENERAL BULLETIN INFORMATION

The National Centre for Geophysical Research is a governmental agency established 1975 in Lebanon by the National Council for Scientific Research (CNRS). The mission of the Centre, among other assignments, is the monitoring of seismic activity within the national territory. Currently, the national seismic network is under deployment; it has been officially registered as GRAL, an acronym for Geophysical Research Arrays of Lebanon. Station coordinates and status are given below.

Since 1993, the Centre has been participating in a regional initiative by the UNESCO and the USGS known as RELEMR, i.e. Reducing Earthquake Losses in the Eastern Mediterranean Region.

Within this framework, the Centre routinely contributes to the database set up for this purpose and maintained by the Euro-Mediterranean Seismological Centre (EMSC). For coherence, the Centre has adopted the recommended seismic analysis system SEISAN developed by Jens Havskov and Lars Ottemoller from the University of Bergen, Norway.

The localization program currently used for locating earthquakes is Hypocenter (Lienert et al., 1986). Plane parallel layers are assumed for local and regional events, while the IASPEI travel time tables are used for distant events.

The velocity model used for all local and regional events is the one currently adopted by the RELEMR initiative.

P-wave velocity (km/sec)	depth to top of layer (km)
6.2	0.0
6.8	14.0
8.05	34.0
8.25	50.0
8.5	80.0

Magnitudes are calculated from the coda duration. The coda wave magnitude is estimated via the formula:

$$M_c = 0.08 + 1.63 * \log_{10}(T) + 0.0009 * D.$$

where T is the coda duration (sec) and D is the epicentral distance (km). The coefficients above were adopted at the outset of our Centre in 1980 and thus are still in use for the sake of continuity.

All available coda values are used for magnitude calculations. No station corrections are used for either travel times or magnitudes calculations. The V_p/V_s velocity ratio used in both layered models above is 1.74.

As a general policy, neither depths, nor epicenters, are fixed unless stated otherwise since this might restrict later use of the data. Consequently, some event locations might be unrealistic such as zero depth earthquakes or teleseismic locations off by 1000 km. However, the locations are based on the available data and reflect the localization procedure and the models used.

STATIONS USED

The stations listed below are operated by the National Centre for Geophysical Research. They constitute the basic setup of the National Seismic Network of Lebanon.

However, readings from other cooperating agencies are also used in locating the events and thus more stations may appear in the event lists than in the station list; it is worth mentioning the systematic use of arrival times from the Cypriot seismic network CSS in order to constrain events corresponding to an active zone off the Lebanese shorelines.

STATION	LATITUDE	LONGITUDE	HEIGHT (m)	NAME	COMMENTS
BHL	3354.25N	3539.25E	1000	BHANNES	Opened May 1980
HWQ	3416.68N	3556.78E	1161	HAWQA	Opened Jan 2001
MATL	3329.32N	3519.78E	5	MATARIH	Opened Nov 2000
FKH	3414.69N	3624.61E	1152	FAKEHEH	Opened Dec 2004
RCY	3329.79N	3550.14E	1370	RACHAYA	Opened Jun 2006
DWR	3323.13N	3524.08E	420	DWEIR	Scheduled 2003
BEYL	3352.30N	3529.59E	49	BEIRUT	Opened Jul 2006
NAQL	3307.02N	3508.46E	83	NAQOURA	Opened Jul 2008
DQRL	3342.34N	3534.21E	963	DEIR QAMAR	Opened Mar 2010
QRWL	3332.86N	3540.93E	875	QARAOUN	Opened Oct 2011
SHBL	3320.90N	3544.63E	1422	CHEBAA	Opened Oct 2011

REGIONAL AND DISTANT EARTHQUAKES

Because regional events and teleseisms are not localized, but simply identified, EMSC determination data are given along with phase arrivals (in general first arrival) at the stations of our network.

MACROSEISMIC DATA

Macroseismic data, if available, are included in the bulletin.

MONTHLY EPICENTER MAPS

Maps will be found on the last page.

ELECTRONIC PUBLICATION

This provisional bulletin is available for download in pdf format on:
<http://www.cnrs.edu.lb/grdownload.html>

REFERENCES

- Havskov, J. and Ottemoller, L. (2001). SEISAN: The Earthquake Analysis Software. -version 7.2-
Institute of Solid Earth Physics, University of Bergen.
<http://www.ifjf.uib.no/seismo/software/seisan.html>
- Lienert, B.R., Berg, E. and Frazer, L.N. (1986). Hypocenter: An earthquake location method using centered, scaled, and adaptively least squares. Bull. Seism. Soc. Am., 76., pp 771-783.

Abbreviations:

TIME: Origin time in UTC (hr. min. and sec.) or data file onset time if event is not located.

LAT: Latitude of epicenter

LON: Longitude of epicenter

DEPTH: Focal depth in kilometer (trailing F indicates fixed depth)

AGENCY: REL throughout the bulletin, aka. REsearch Lebanon

MAGNITUDES: Up to 3 different magnitudes can be given followed by type and reporting agency, e.g. 3.1 MC REL - coda magnitude calculated according to above mentioned formula.

EMSC: Euro-Mediterranean Seismological Centre.

OT: Origin Time

RMS: Root mean square value of travel time residuals

STAT: Station code

CO: Component; S:short period, L:long period, B:broadband.

DIST: Epicenter distance (km)

AZI: Azimuth from source to station

PHAS: Phase; The first letter characterizes onset E(mergent) or I(mpulsive)

P: Polarity (C for compression, D for dilatation)

HR: Hour

MN: Minute

SECON: Seconds

TRES: Residual (seconds)

CODA: Signal duration in seconds

AMPL: Ground Amplitude ($0.5 * (\text{peak to peak})$), (nm) at period PERI

PERI: Period where amplitude is measured

BAZ: Back azimuth (station to event)

ARES: Back azimuth residual

VELO: Apparent phase velocity (km/sec)

WT: Weight of phase in the location

*: An asterisk before the phase arrival time implies a potential timing error. If an S phase is read, differential S-P times will be used in the hypocenter location.

January 1 2012 Hour: 5:27 56.0

Agency: REL Distant

EMSC OT=05:27:56.0 31.48N 138.12E 365Km M=7.0 JAPAN

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	SZ			EP		539	35.94								
BHL	BZ			EP		539	37.36								
QRWL	SZ			EP		539	37.45								
RCY	SZ			EP		539	37.98								
SHBL	BZ			EP		539	39.14								

January 1 2012 Hour: 11:12 0.0

Agency: REL Regional

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
DQRL	SZ			EP		1112	50.87								
RCY	SZ			EP		1112	48.55								

January 1 2012 Hour: 20:1 17.3

Lat: 33.30N Lon: 35.42E Depth: 4 Agency: REL Local

Magnitudes: 2.8MC REL

Rms: 0.0 secs

SOUTH LEBANON

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
SHBL	BZ	31	81	EP		20	1	22.35	0.02						1.0
QRWL	SZ	37	42	EP		20	1	23.19	-0.04						1.0
RCY	SZ	45	61	EP		20	1	24.47	-0.02	42					1.0
RCY	SN	45	61	ES		20	1	29.85	0.01						1.0
DQRL	SZ	47	18	EP		20	1	24.85	-0.01						1.0
BHL	BZ	70	18	EP		20	1	28.64	0.03						1.0

January 3 2012 Hour: 4:44 51.6

Lat: 33.20N Lon: 35.82E Depth: 0 Agency: REL Local

Magnitudes: 2.8MC REL

Rms: 0.0 secs

MOUNT HERMON REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
SHBL	BZ	18	336	EP		444	54.45	-0.06							1.0
RCY	SZ	33	2	EP		444	56.89	-0.01	43						1.0
RCY	SE	33	2	ES		445	0.84	-0.00							1.0
QRWL	SZ	41	341	EP		444	58.19	0.03							1.0
QRWL	SN	41	341	ES		445	3.04	-0.00							1.0
DQRL	SZ	61	337	EP		445	1.44	0.04							1.0

January 4 2012 Hour: 5:15 26.9

Lat: 33.12N Lon: 35.75E Depth: 1 Agency: REL Local

Magnitudes: 2.7MC REL

Rms: 0.0 secs

MOUNT HERMON REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
SHBL	BZ	25	359	EP		515	30.91	-0.09							1.0
SHBL	BE	25	359	ES		515	34.04	0.00							1.0
RCY	SZ	43	11	EP		515	33.82	0.05	37						1.0
RCY	SN	43	11	ES		515	38.85	-0.00							1.0
QRWL	SZ	48	353	EP		515	34.65	0.04							1.0
QRWL	SN	48	353	ES		515	40.32	-0.00							1.0
DQRL	SZ	67	346	EP		515	37.72	0.01							1.0
HWQ	SZ	130	8	EP		515	47.81	-0.01							1.0

January 4 2012 Hour: 13:15 11.4

Lat: 33.40N Lon: 35.50E Depth: 2 Agency: REL Local

Magnitudes: 2.9MC REL

Rms: 0.0 secs

SAIDA REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
SHBL	BZ	23	104	EP		1315	15.19	-0.04							1.0
SHBL	BN	23	104	ES		1315	18.11	0.05							1.0
QRWL	SZ	24	46	EP		1315	15.15	-0.09							1.0
QRWL	SN	24	46	ES		1315	18.11	0.03							1.0
RCY	SZ	33	71	EP		1315	16.80	0.04	52						1.0
RCY	SN	33	71	ES		1315	20.68	-0.04							1.0
DQRL	SZ	35	11	EP		1315	17.01	0.01							1.0
HWQ	SZ	106	23	EP		1315	28.52	0.05							1.0

January 5 2012 Hour: 1:13 37.0

Agency: REL Distant

EMSC OT=01:13:37.0 17.63S 173.46W 10Km M=5.4 TONGA

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ			EP		133	26.91								
SHBL	BZ			EP		133	27.66								

January 5 2012 Hour: 4:30 23.5

Lat: 33.31N

Lon: 35.70E

Depth: 5

Agency: REL Local

Magnitudes: 2.6MC REL

Rms: 0.0 secs

MOUNT HERMON REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
SHBL	BZ	5	46	EP		430	24.86	-0.00							1.0
RCY	SZ	24	32	EP		430	27.50	0.06	36						1.0
RCY	SN	24	32	ES		430	30.34	-0.03							1.0
DQRL	SZ	45	344	EP		430	30.76	-0.06							1.0
DQRL	SN	45	344	ES		430	36.28	0.03							1.0

January 5 2012 Hour: 15:18 3.6

Lat: 33.38N

Lon: 35.64E

Depth: 5

Agency: REL Local

Magnitudes: 2.7MC REL

Rms: 0.0 secs

MOUNT HERMON REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
SHBL	BZ	10	113	EP		1518	5.61	0.00							1.0
QRWL	SZ	18	12	EP		1518	6.75	0.00							1.0
QRWL	SN	18	12	ES		1518	9.06	-0.02							1.0
RCY	SZ	22	55	EP		1518	7.25	-0.04	39						1.0
RCY	SN	22	55	ES		1518	10.05	0.03							1.0
DQRL	SZ	36	349	EP		1518	9.55	0.02							1.0

January 5 2012 Hour: 16: 2 15.4

Lat: 34.59N

Lon: 36.44E

Depth: 0

Agency: REL Local

Magnitudes: 3.2MC REL

Rms: 0.0 secs

AKKAR

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
FKH	BZ	39	183	EP		16 2	21.62	-0.01	80						1.0
HWQ	SZ	57	232	EP		16 2	24.54	-0.03							1.0
BHL	BZ	105	224	EP		16 2	32.30	-0.02							1.0
DQRL	SZ	127	219	EP		16 2	35.82	-0.00							1.0
DQRL	SN	127	219	ES		16 2	50.98	0.04							1.0
RCY	BZ	134	205	EP		16 2	36.99	0.06							1.0
RCY	BN	134	205	ES		16 2	52.84	-0.03							1.0
SHBL	BZ	152	205	EP		16 2	39.67	0.02							1.0
SHBL	BN	152	205	ES		16 2	57.59	-0.02							1.0

January 6 2012 Hour: 20:35 14.0

Agency: REL Regional

EMSC OT=20:35:14.0 36.22N 29.02E 60Km M=4.5 WESTERN TURKEY

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ			EP		2036	36.65								
DQRL	SZ			EP		2036	37.26								
HWQ	SZ			EP		2036	39.17								
QRWL	SZ			EP		2036	39.98								
RCY	SZ			EP		2036	42.20								
SHBL	BZ			EP		2036	42.25								

January 7 2012 Hour: 14:41 14.0

Lat: 33.88N

Lon: 35.82E

Depth: 10

Agency: REL Local

Magnitudes: 2.9MC REL

Rms: 0.1 secs

KESROUANE

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ	16	280	EP		1441	17.13	0.01	51						1.0
DQRL	SZ	30	231	EP		1441	19.25	0.06							1.0
DQRL	SN	30	231	ES		1441	22.97	-0.07							1.0
BEYL	BZ	30	269	EP		1441	19.21	0.04							1.0
QRWL	SZ	39	199	EP		1441	20.36	-0.16							1.0
QRWL	SN	39	199	ES		1441	25.43	0.07							1.0
RCY	BZ	42	178	EP		1441	21.12	0.03							1.0
RCY	BN	42	178	ES		1441	26.35	0.00							1.0

HWQ	SZ	46	15	EP		1441	21.58	-0.01										1.0
SHBL	BZ	59	187	EP		1441	23.76	0.03										1.0

January 7 2012 Hour: 15:18 1.4 Lat: 33.37N Lon: 35.59E Depth: 9 Agency: REL Local
Magnitudes: 2.7MC REL Rms: 0.0 secs

MOUNT HERMON REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
SHBL	BZ	15	97	EP		1518	4.30	-0.03							1.0
SHBL	BN	15	97	ES		1518	6.53	0.01							1.0
QRWL	SZ	22	24	EP		1518	5.40	0.10							1.0
QRWL	SE	22	24	ES		1518	8.17	-0.04							1.0
RCY	SZ	27	58	EP		1518	6.06	-0.05	37						1.0
RCY	SN	27	58	ES		1518	9.65	0.03							1.0
DQRL	SZ	38	358	EP		1518	7.67	-0.02							1.0

January 7 2012 Hour: 18:38 8.0 Agency: REL Distant

EMSC OT=18:38:08.0 28.60S 176.92W 10Km M=5.7 KERMADEC ISLANDS

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
RCY	SZ			EP		1858	3.92								
BHL	BZ			EP		1858	4.00								
QRWL	SZ			EP		1858	4.34								
SHBL	BZ			EP		1858	4.40								
DQRL	SZ			EP		1858	4.57								

January 8 2012 Hour: 9:53 33.9 Lat: 33.73N Lon: 37.10E Depth: 15 Agency: REL Local
Magnitudes: 3.2MC REL Rms: 0.1 secs

DAMASCUS REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
RCY	SZ	120	258	EP		953	52.61	-0.02	69						1.0
RCY	SN	120	258	ES		954	6.45	-0.02							1.0
HWQ	SZ	123	300	EP		953	53.06	0.03							1.0
HWQ	SE	123	300	ES		954	7.15	-0.02							1.0
SHBL	BZ	133	252	EP		953	54.58	0.08							1.0
SHBL	BN	133	252	ES		954	9.69	-0.03							1.0
BHL	BZ	135	279	EP		953	54.73	-0.12							1.0
BHL	BN	135	279	ES		954	10.39	0.06							1.0
DQRL	SZ	142	270	EP		953	55.83	0.03							1.0

January 9 2012 Hour: 19:53 36.0 Agency: REL Distant

EMSC OT=19:53:36.0 27.03N 55.66E 10Km M=5.3 SOUTHERN IRAN

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
RCY	SZ			EP		1957	50.64								
SHBL	BZ			EP		1957	51.08								
QRWL	SZ			EP		1957	51.84								
HWQ	SZ			EP		1957	52.62								
BHL	BZ			EP		1957	53.83								

January 10 2012 Hour: 18:36 59.0 Agency: REL Distant

EMSC OT=18:36:59.0 02.49N 93.23E 10Km M=7.2 SUMATRA

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
SHBL	BZ			EP		1847	19.86								
QRWL	SZ			EP		1847	21.28								
BHL	BZ			EP		1847	21.80								
DQRL	SZ			EP		1847	22.41								

January 12 2012 Hour: 0:26 30.0 Agency: REL Regional

EMSC OT=00:26:30.0 35.89N 31.02E 27Km M=4.4 CYPRUS REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ			EP		027	33.93								
HWQ	SZ			EP		027	36.26								
DQRL	SZ			EP		027	37.60								
QRWL	SZ			EP		027	39.86								

January 12 2012 Hour: 11:33 33.4 Lat: 34.52N Lon: 36.75E Depth: 14 Agency: REL Local
Magnitudes: 3.0MC REL Rms: 0.1 secs

NEBEK REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	SZ	79	250	EP		1133	45.98	-0.06	57						1.0
HWQ	SN	79	250	ES		1133	55.35	-0.03							1.0
BHL	BZ	122	236	EP		1133	52.51	0.10							1.0
RCY	SZ	142	217	EP		1133	55.19	-0.13							1.0
RCY	SE	142	217	ES		1134	11.53	0.01							1.0
DQRL	SZ	142	231	EP		1133	55.39	0.11							1.0
SHBL	BZ	160	216	EP		1133	58.00	-0.00							1.0

January 13 2012 Hour: 0:22 43.4 Lat: 33.58N Lon: 35.71E Depth: 2 Agency: REL Local
Magnitudes: 2.3MC REL Rms: 0.0 secs

CENTRAL BEKAA

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
QRWL	SZ	4	211	EP		022	44.27	0.00	24						1.0
RCY	BZ	15	128	EP		022	45.92	-0.01							1.0
RCY	BN	15	128	ES		022	47.80	0.00							1.0
DQRL	SZ	19	317	EP		022	46.44	-0.01							1.0
SHBL	BZ	26	172	EP		022	47.67	0.01							1.0
SHBL	BN	26	172	ES		022	50.80	-0.01							1.0
BHL	BZ	36	352	EP		022	49.28	0.05							0.2

January 17 2012 Hour: 0:58 44.0 Lat: 34.06N Lon: 35.78E Depth: 16 Agency: REL Local
Magnitudes: 2.8MC REL Rms: 0.0 secs

KESROUANE

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ	21	212	EP		058	48.35	-0.03	48						1.0
BHL	BN	21	212	ES		058	51.58	-0.02							1.0
HWQ	SZ	29	34	EP		058	49.37	-0.01							1.0
HWQ	SE	29	34	ES		058	53.36	0.02							1.0
DQRL	SZ	44	206	EP		058	51.54	0.02							1.0
DQRL	SE	44	206	ES		058	57.12	0.05							1.0
QRWL	SZ	58	189	EP		058	53.53	-0.01							1.0
QRWL	SE	58	189	ES		059	0.60	0.02							1.0
RCY	SZ	63	175	EP		058	54.35	0.00							1.0
SHBL	BZ	79	182	EP		058	56.68	-0.05							1.0

January 18 2012 Hour: 12: 5 42.0 Lat: 33.45N Lon: 35.65E Depth: 0 Agency: REL Local
Magnitudes: 2.6MC REL Rms: 0.0 secs

MOUNT HERMON REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
QRWL	SZ	11	15	EP		12 5	43.74	-0.06							1.0
SHBL	BZ	14	143	EP		12 5	44.33	-0.01							1.0
SHBL	BN	14	143	ES		12 5	46.05	-0.01							1.0
RCY	SZ	18	74	EP		12 5	44.96	0.05	33						1.0
RCY	SE	18	74	ES		12 5	47.04	-0.01							1.0
DQRL	SZ	29	345	EP		12 5	46.75	0.03							1.0

January 18 2012 Hour: 13:33 23.6 Lat: 33.37N Lon: 35.35E Depth: 0 Agency: REL Local
Magnitudes: 2.9MC REL Rms: 0.0 secs

SAIDA REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
SHBL	BZ	36	93	EP		1333	29.48	0.00							1.0
SHBL	BN	36	93	ES		1333	33.83	-0.00							1.0
DQRL	SZ	43	28	EP		1333	30.47	-0.03							1.0
DQRL	SN	43	28	ES		1333	35.60	-0.00							1.0
RCY	SZ	47	72	EP		1333	31.20	-0.01	53						1.0
RCY	SN	47	72	ES		1333	36.85	0.00							1.0
HWQ	SZ	115	28	EP		1333	42.20	0.03							1.0

January 19 2012 Hour: 15:20 17.7 Lat: 33.39N Lon: 35.68E Depth: 12 Agency: REL Local
Magnitudes: 2.6MC REL Rms: 0.0 secs

MOUNT HERMON REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
SHBL	BZ	7	130	EP		1520	20.16	0.01							1.0
SHBL	BE	7	130	ES		1520	21.97	-0.01							1.0
QRWL	SZ	17	360	EP		1520	21.17	-0.01							1.0
RCY	SZ	18	50	EP		1520	21.36	0.00	35						1.0
RCY	SN	18	50	ES		1520	24.07	-0.00							1.0
DQRL	SZ	37	343	EP		1520	23.92	-0.01							1.0
DQRL	SN	37	343	ES		1520	28.56	0.01							1.0

January 19 2012 Hour: 21:29 38.6 Lat: 33.81N Lon: 35.42E Depth: 27 Agency: REL Local
Magnitudes: 2.6MC REL Rms: 0.0 secs

OFFSHORE CENTRAL LEBANON

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
DQRL	SZ	18	128	EP		2129	43.86	0.01							1.0
BHL	BZ	24	63	EP		2129	44.47	0.02							1.0
QRWL	SZ	38	139	EP		2129	45.96	0.04	33						1.0
QRWL	SN	38	139	ES		2129	51.24	-0.06							1.0
RCY	SZ	52	131	EP		2129	47.74	-0.03							1.0
RCY	SN	52	131	ES		2129	54.58	0.05							1.0
HWQ	SZ	72	43	EP		2129	50.47	-0.02							1.0

January 20 2012 Hour: 12:40 22.0 Lat: 33.44N Lon: 35.57E Depth: 9 Agency: REL Local
Magnitudes: 2.5MC REL Rms: 0.0 secs

SAIDA REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
QRWL	SZ	15	42	EP		1240	25.04	0.00							1.0
QRWL	SN	15	42	ES		1240	27.28	-0.00							1.0
SHBL	BZ	19	124	EP		1240	25.61	-0.00							1.0
SHBL	BN	19	124	ES		1240	28.28	0.00							1.0
RCY	SZ	25	77	EP		1240	26.46	-0.01	30						1.0
RCY	SN	25	77	ES		1240	29.77	0.00							1.0
DQRL	SZ	29	360	EP		1240	27.06	0.06							0.2
BHL	BZ	52	9	EP		1240	30.50	-0.01							0.2

January 20 2012 Hour: 13:42 25.1 Lat: 33.87N Lon: 35.84E Depth: 0 Agency: REL Local
Magnitudes: 3.0MC REL Rms: 0.0 secs

KESROUANE

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ	17	282	EP		1342	27.96	0.01	58						1.0
BHL	BN	17	282	ES		1342	30.03	-0.01							1.0
DQRL	SZ	31	234	EP		1342	30.16	0.05							1.0
VERD	SZ	33	272	EP		1342	30.43	-0.04							1.0
RCY	BZ	42	180	EP		1342	31.79	-0.05							1.0
RCY	BN	42	180	ES		1342	36.78	-0.03							1.0
HWQ	SZ	46	12	EP		1342	32.61	0.02							1.0
SHBL	BZ	59	189	EP		1342	34.60	0.01							1.0
SHBL	BN	59	189	ES		1342	41.64	0.04							1.0

January 23 2012 Hour: 9:24 21.6 Lat: 34.28N Lon: 36.53E Depth: 15 Agency: REL Local
Magnitudes: 3.0MC REL Rms: 0.0 secs

HERMEL BAALBEK REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	SZ	54	270	EP		924	30.58	0.02	58						1.0
HWQ	SE	54	270	ES		924	37.16	-0.03							1.0
BHL	BZ	91	243	EP		924	36.09	0.06							1.0
RCY	SZ	108	217	EP		924	38.50	-0.06							1.0
RCY	SE	108	217	ES		924	51.07	-0.04							1.0
SHBL	BZ	127	215	EP		924	41.25	-0.01							1.0
SHBL	BE	127	215	ES		924	55.87	0.06							1.0

January 24 2012 Hour: 0:52 5.0

Agency: REL Distant

EMSC OT=00:52:05.0 24.99S 178.56E 584Km M=6.4 FIJI ISLANDS

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
SHBL	BZ			EP		110	41.17								
QRWL	SZ			EP		110	41.67								
BHL	BZ			EP		110	41.91								

January 24 2012 Hour: 13: 4 53.5

Lat: 34.06N

Lon: 35.69E

Depth: 0

Agency: REL Local

Magnitudes: 2.8MC REL

Rms: 0.0 secs

KESROUANE

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ	18	191	EP		13	4	56.28	-0.04		46				1.0
HWQ	SZ	34	44	EP		13	4	58.95	0.01						1.0
DQRL	SZ	41	196	EP		13	5	0.07	0.01						1.0
DQRL	SE	41	196	ES		13	5	4.94	0.01						1.0
RCY	SZ	64	168	EP		13	5	3.76	-0.02						1.0
RCY	SN	64	168	ES		13	5	11.41	0.00						1.0
SHBL	BZ	79	176	EP		13	5	6.26	0.03						1.0

January 25 2012 Hour: 18:56 23.4

Lat: 33.60N

Lon: 34.85E

Depth: 31

Agency: REL Local

Magnitudes: 2.9MC REL

Rms: 0.0 secs

OFFSHORE SOUTH LEBANON

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
DQRL	SZ	68	80	EP		1856	34.86	-0.03							1.0
QRWL	SZ	78	94	EP		1856	36.27	0.04		47					1.0
BHL	BZ	82	66	EP		1856	36.82	-0.01							1.0
SHBL	BZ	88	108	EP		1856	37.65	-0.02							1.0
SHBL	BE	88	108	ES		1856	48.22	-0.02							1.0
RCY	BZ	92	97	EP		1856	38.25	0.02							1.0
RCY	BN	92	97	ES		1856	49.23	0.01							1.0
HWQ	SZ	126	53	EP		1856	42.41	0.00							1.0

January 26 2012 Hour: 4:24 50.9

Agency: REL Regional

EMSC OT=04:24:50.9 36.07N 25.07E 14Km M=5.3 DODECANESE

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ			EP		427	5.45								
DQRL	SZ			EP		427	5.68								
QRWL	SZ			EP		427	7.44								
RCY	SZ			EP		427	9.07								

January 26 2012 Hour: 13: 2 31.2

Lat: 33.40N

Lon: 35.66E

Depth: 0

Agency: REL Local

Magnitudes: 2.6MC REL

Rms: 0.0 secs

MOUNT HERMON REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
SHBL	BZ	9	129	EP		13	2	32.71	-0.02						1.0
SHBL	BN	9	129	ES		13	2	33.87	0.00						1.0
QRWL	SZ	16	6	EP		13	2	33.77	-0.05						1.0
RCY	SZ	19	56	EP		13	2	34.33	0.06		34				1.0
RCY	SN	19	56	ES		13	2	36.54	-0.02						1.0
DQRL	SZ	35	345	EP		13	2	36.83	0.02						1.0

January 27 2012 Hour: 1:33 23.0

Agency: REL Regional

EMSC OT=01:33:23.0 36.04N 25.06E 5Km M=5.4 DODECANESE

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ			EP		135	29.05								
DQRL	SZ			EP		135	32.12								
HWQ	SZ			EP		135	32.77								
RCY	SZ			EP		135	34.55								

January 27 2012 Hour: 14:53 14.0 Agency: REL Distant
EMSC OT=14:53:14.0 44.48N 10.03E 60Km M=5.0 NORTHERN ITALY
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT
 BHL BZ EP 1458 7.99
 DQRL SZ EP 1458 8.52
 QRWL SZ EP 1458 9.97
 RCY SZ EP 1458 11.40

January 28 2012 Hour: 17:47 37.0 Agency: REL Distant
EMSC OT=17:47:37.0 29.66S 177.09W 20Km M=5.3 NEW ZEALAND
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT
 HWQ SZ EP 18 2 44.93
 BHL BZ EP 18 2 45.77
 RCY SZ EP 18 2 45.77
 DQRL SZ EP 18 2 46.36
 QRWL SZ EP 18 2 46.25

January 28 2012 Hour: 18:49 6.0 Agency: REL Distant
EMSC OT=18:49:06.0 29.62S 177.15W 45Km M=5.3 NEW ZEALAND
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT
 RCY SZ EP 19 8 57.63
 BHL BZ EP 19 8 57.82
 DQRL SZ EP 19 8 58.20

January 28 2012 Hour: 19: 5 36.0 Agency: REL Distant
EMSC OT=19:05:36.0 29.53S 177.11W 0Km M=5.4 NEW ZEALAND
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT
 HWQ SZ EP 1925 32.56
 BHL BZ EP 1925 33.72
 QRWL SZ EP 1925 33.84
 DQRL SZ EP 1925 34.23

January 29 2012 Hour: 10: 5 51.7 Lat: 34.44N Lon: 36.83E Depth: 20 Agency: REL Local
Magnitudes: 3.0MC REL Rms: 0.1 secs
NEBEK REGION
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT
 HWQ SZ 83 258 EP 10 6 4.98 0.08 53 1.0
 HWQ SE 83 258 ES 10 6 14.72 0.01 1.0
 BHL BZ 123 241 EP 10 6 10.71-0.11 1.0
 RCY SZ 139 221 EP 10 6 13.29 0.13 1.0
 RCY SN 139 221 ES 10 6 29.07 0.00 1.0
 DQRL SZ 142 235 EP 10 6 13.33-0.11 1.0
 DQRL SN 142 235 ES 10 6 29.56 0.00 1.0
 SHBL BZ 157 220 EP 10 6 15.39-0.02 1.0

January 29 2012 Hour: 16:35 52.0 Agency: REL Regional
EMSC OT=16:35:52.0 36.05N 31.09E 80Km M=3.2 WESTERN TURKEY
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT
 BHL BZ EP 1636 54.10
 DQRL SZ EP 1636 54.73
 HWQ SZ EP 1636 56.24
 RCY SZ EP 1636 59.87
 SHBL BZ EP 1636 59.52

January 30 2012 Hour: 12:10 24.1 Lat: 33.38N Lon: 35.62E Depth: 9 Agency: REL Local
Magnitudes: 2.7MC REL Rms: 0.0 secs
MOUNT HERMON REGION
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT
 SHBL BZ 12 105 EP 1210 26.64 0.01 1.0
 QRWL SZ 20 16 EP 1210 27.63-0.03 1.0
 QRWL SN 20 16 ES 1210 30.33-0.01 1.0
 RCY SZ 24 56 EP 1210 28.25-0.03 39 1.0
 RCY SN 24 56 ES 1210 31.43 0.02 1.0

DQRL	SZ	37	352	EP		1210	30.28	0.04										1.0
HWQ	SZ	104	17	EP		1210	40.69	-0.01										0.2

January 30 2012 Hour: 17: 4 24.0

Agency: REL Regional

EMSC OT=17:04:24.0 27.71N 34.18E 2Km M=4.6 RED SEA

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
SHBL	BZ			EP		17	5	52.58							
RCY	SZ			EP		17	5	54.92							
QRWL	SZ			EP		17	5	56.93							
DQRL	SZ			EP		17	5	59.61							
BHL	BZ			EP		17	6	2.33							
HWQ	SZ			EP		17	6	8.28							

January 31 2012 Hour: 12:36 55.3

Lat: 34.53N Lon: 36.71E Depth: 15 Agency: REL Local

Magnitudes: 3.0MC REL

Rms: 0.1 secs

NEBEK REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	SZ	75	249	EP		1237	7.32	-0.08							1.0
DQRL	SZ	139	229	EP		1237	16.95	0.18							1.0
RCY	SZ	140	215	EP		1237	16.81	-0.11	51						1.0
RCY	SE	140	215	ES		1237	32.97	0.05							1.0
SHBL	BZ	158	215	EP		1237	19.65	0.02							1.0
SHBL	BE	158	215	ES		1237	37.57	-0.06							1.0

January 31 2012 Hour: 12:47 0.0

Lat: 35.14N Lon: 32.88E Depth: 57 Agency: REL Regional

Magnitudes: 3.5MC REL

Rms: 0.1 secs

EMSC OT=12:47:00.0 35.08N 32.98E 45Km M=3.5 CYPRUS REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ	289	117	EP		1247	38.31	-0.10							1.0
DQRL	SZ	294	122	EP		1247	39.01	0.03							1.0
HWQ	SZ	296	108	EP		1247	39.32	-0.01	85						1.0
RCY	SZ	327	123	EP		1247	43.14	0.07							1.0
RCY	SN	327	123	ES		1248	15.08	-0.11							1.0
SHBL	BZ	330	126	EP		1247	43.44	0.02							1.0
SHBL	BN	330	126	ES		1248	15.89	0.10							1.0

January 31 2012 Hour: 13: 7 16.1

Lat: 33.30N Lon: 35.35E Depth: 29 Agency: REL Local

Magnitudes: 2.6MC REL

Rms: 0.0 secs

SOUTH LEBANON

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
SHBL	BZ	37	82	EP		13	7	23.46	-0.01						1.0
SHBL	BE	37	82	ES		13	7	28.94	0.01						1.0
DQRL	SZ	49	24	EP		13	7	24.96	0.01						1.0
DQRL	SE	49	24	ES		13	7	31.50	-0.01						1.0
RCY	SZ	50	64	EP		13	7	25.07	-0.01	35					1.0
HWQ	SZ	121	27	EP		13	7	34.67	0.03						0.2

Epicentral Map of Lebanon

JANUARY 2012

Magnitudes

- MI = 2
- MI = 3
- MI = 4
- MI = 5
- ★ Felt

